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# Botanical Gazette.

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**Editorial.**—With this issue we publish the first of several papers by Dr. J. T. Rothrock upon the Modes of Work in de Bary's Laboratory at Strassburg. That they will be read with interest by our workers in Anatomy and Physiology is but natural; for they will be a description of one of the most famous laboratories in the world, by one of our most skillful investigators.

DR. ASA GRAY, in a private letter from Kew Gardens, assures us that he is not resting from labor, but is busier than ever. With the change of a word, he uses the old quotation, *cælum non laborem mutant qui trans mare currunt*.

CONTRIBUTORS must exercise some patience in waiting for the appearance of their articles. The GAZETTE is getting to be quite popular and no contributor can now be certain of an immediate place in our pages. If, then, two or three months pass without a sign from us no alarm need be felt, for everything will be worked in in its own time, and the appearance will condone for much delay. This is not meant to stop the flow of contributions, for we would like it to be steadier and stronger than it is now, but as a word of explanation to many of our friends who may by this time have lost all patience with us.

MR. H. H. RUSBY's article on the Ferns of New Mexico has been sent to us through the kindness of the Syracuse Botanical Club, Mrs. F. J. Myers, Secretary. This organization of ladies is unwearying in study and exploration.

MR. LUCIEN M. UNDERWOOD, of Bloomington, Ill., has published a neat check list of North American PTERIDOPHYTA, excluding the Orders *Filices* and *Ophioglossaceæ*. Order *Equisetaceæ* contains 13 species; *Lycopodiaceæ* 12; *Selaginellaceæ* 6; *Isoetaceæ* 14; *Marsiliaceæ* (three genera) 7. The author states that the list is merely preliminary and that he will be glad to receive specimens and notes, that a full account of native PTERIDOPHYTA may be prepared.

PROF. MARCUS E. JONES, of Salt Lake City, Utah, has published his list of Utah plants. Prof. Jones is an indefatigable collector and his plants are very desirable. The coming season he will botanize through Utah, Nevada, California and Arizona.

PROF. W. G. FARLOW has just published a paper, with plates, upon the Gymnosporangia or Cedar-Apples of the U. S. An early review of it may be expected in the GAZETTE.

IN THE LAST PART of the second volume of *Beiträge zur Biologie der Pflanzen* are some important papers on fungi and Bacteria, and one on physiology. Dr. Just has been experimenting on the action of high temperatures on the preservation and germination of seeds. He finds that perfectly dry seeds can withstand a temperature of even 120°

and 125° Cent. without injury. Dr. Koch gives directions for the preparation of specimens of bacteria.

MR. G. BENTHAM has presented the Linnean Society a contribution containing the results of his study of the *Orchideæ*. He groups them into five tribes and twenty-seven sub-tribes.

FRANCIS DARWIN, in a recent number of *Nature* gives a review of Dr. Hermann Muller's work on Alpine Flowers. Of course the relation of Alpine Flowers to insects is the burden of the book, which must be an extremely interesting one. One of the most striking facts is that in Alpine regions butterflies predominate, largely replacing the Hymenoptera of the lowlands. With this change of guests must come a change in structure, for a corolla that will admit a bee, will by no means necessarily be fertilized by the proboscis of a Lepidopterous insect. Thus, members of the same genus will have open mouthed corollas in the lowlands, and contracted throats in the Alpine regions, may be with no opening but the minute "butterfly-door." The relation existing between the colors of flowers and insect visits is also considered and is by no means the least readable part of the book.

**Notes on Modes of Work in the Laboratory of Prof. de Bary in Strassburg, Germany. I.**—There are two reasons why some statements under the above heading might be of service in our country: first, because of the simplicity of the appliances used in one of the most productive botanical laboratories abroad, and second, because the modes of investigation, though not entirely unknown or untaught here, merit a wider diffusion.

Taking up the first of these reasons, we may say that microscopy, simple and pure, has done good work here in getting us instruments of great efficiency at lower rates than formerly, but has proved so attractive that it has lured to itself absolutely many who might well bestow a portion of their time on real biological investigation. Indeed, it has even gone further and, by some means, induced a feeling, on the part of those contemplating the purchase of a microscope, that they will wait until they can obtain one of the highest grade. This reminds one of a physician resolving to go on foot until he can drive two horses, ignoring the fact that one might render him essential service, to start with, at least. There is ordinarily no objection to the most costly instrument (save its size,) and it is, beside, supposed to be fitted for all manner of work; but on the other hand, it is to be remembered that nearly all (not to say all) the best botanical work has been done in Europe with extremely cheap microscopes, i. e., a mere stand with good eye-pieces and good objectives. And I may also add that Robert Brown's work was done in part, if not entirely, with a simple microscope, and that the recent solid contribution to American biological literature, *Leidy's Rhizopods*, was made with the little Hartnack, and the Beck Economic Microscopes. So then I make this statement at the outset, that for fifty dollars one may purchase an American Microscope which will do as good work as those found in European Laboratories. On my table lies a cut of a Zentmeyer instrument, named by him the American Student Stand, with 1 Eye-